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CLAIMS

1. A frequency shifting device comprising:
first means for providing a layer of optically refractive material having a moving refractive boundary responsive to an application of a traveling wave electrical signal and second means for providing an electrical signal to said first means effective to
5 effect a predetermined frequency shift of an optical signal passing therethrough.
2. The invention of Claim 1 wherein said device includes an active polymer layer and a first optically conductive cladding layer above.
3. The invention of Claim 2 wherein said device further includes a microstrip line disposed over said first cladding layer.
4. The invention of Claim 3 further including an optically conductive second cladding disposed beneath said active polymer layer.
5. The invention of Claim 4 further including a ground plane beneath the said second cladding layer.
6. The invention of Claim 5 further including a quartz or silicon substrate disposed beneath said ground plane.

7. A frequency shifting device comprising:
a substrate;
a ground plane disposed over said substrate;
an optically conductive second cladding layer disposed over said ground plane;
5 an active polymer disposed over said second cladding layer;
an optically conductive first cladding layer disposed over said active polymer,
a microstrip line disposed over said first cladding layer.

8. A continuous wave frequency converter comprising:

first and second frequency shifting devices disposed in first and second optical paths respectively, each of said devices having a layer of optically refractive material with a moving boundary responsive to the application of an electrical signal and

5 means for providing an electrical signal to said first and second devices.

9. A method for continuous wave frequency shifting of an optical signal comprising the steps of:

providing layers of optically refractive material having a moving refractive boundary responsive to an application of a traveling wave sinusoidal electrical signal and

5 providing electrical signals to said layers to effect a predetermined frequency shift of an optical signal passing therethrough.